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On Conspiracies
By Alexander Cockburn

There are plenty of real conspiracies in America. Why make up fake ones? Every few years, property czars and city government in New York conspire to withhold fire company responses, so that enough of a neighborhood burns down for the poor to quit and for profitable gentrification to ensue. That's a conspiracy to commit ethnic cleansing, also murder.

It's happening today in Brooklyn, even as similar ethnic cleansing and gentrification are scheduled in San Francisco. Bayview Hunters Point is the last large black community in the Bay Area, sitting on bay front property. So now it's the time to move the black folks out. As Willie Ratcliff, publisher of *Bay View* writes, "If the big developers and their puppets, the mayor [Democrat Gavin Newsom] and his minions win this war, they'll have made what may be the largest urban renewal land grab in the nation's history: some 2,200 acres of San Francisco, the city with the highest priced land on earth." That's a real conspiracy, even as many in the Bay Area left meander through the blind alleys of 9/11 conspiratorialism.

The conspiracy virus is an old strand. Arabs in caves couldn't have brought down the towers. The Russians couldn't possibly build an A-bomb without Commie traitors. Hitler couldn't have been defeated by the Red Army marching across Eastern Europe and half Germany. Traitors let it happen. JFK couldn't have been shot by Oswald: it had to be the CIA. There are no end to examples seeking to prove that Russians, Arabs, Viet Cong, Japanese, etc etc couldn't possibly match the brilliance and cunning of secret cabals of white Christians. It's all pathetic, but it does save the trouble of reading and thinking. CP

"An oil well fire under a loaded bridge."

Dark Fire: the Fall of WTC 7

By MANUEL GARCIA, Jr.

Bright, windless September morning in Manhattan, looking south and slightly west across Vesey Street from the 12th floor of WTC 7. The eight story U.S. Customs House (WTC 6) lies directly across the way, and beyond it the North Tower (WTC 1), slightly rightward to the west, with the South Tower (WTC 2) even further off, left of WTC 1 to the east.

Then a plane, loud, fast, low, directly overhead flying south; the sun glints off the dimpling of its shiny aluminum painted skin; its 156 ft wingspan over three quarters the width of a Tower face — puff! The lightning clarity of the moment blinks, the airplane disappears, an orange fireball erupts out of the north face of WTC 1 engulfing its ninth decade of stories. Thinking stops.

Hour = 8:46:30 a.m.; Time = 0.

Hurried calls, nervous chatter, excitement, fear; transfixed, watching the smoke engulf the top of WTC 1; and then another airplane, flying up from the south — puff!

The plane disappears into the far side of WTC 2, the southern face. A fireball bursts through the north face, consuming the seventh decade of stories. Rocketing debris shoots out of the northeast corner — this way?! — it falls short, some whisks past just to the left.

Hour = 9:02:59 a.m.; Time = 16.5 minutes.

In time, the landing gear and an engine thrown out of WTC 2 would be found two and three blocks north, and within a block east of WTC 7. A section of the fuselage from that plane fell atop WTC 5, the nine-story North Plaza Building east of the US Customs House. (See FEMA 403, "World Trade Center Building Performance Study: Data Collection, Preliminary Observations, and Recommendations, (second printing)," September 2002.)

Some would wonder, "Am I shuddering, or did I feel an earthquake?" Seismometers would record the airplane impacts at local magnitudes 0.9 and 0.7, respectively.

Phone home, reassure; what to do, work?, only watching out the window is possible, chatter is stunned to silence. People are beginning to jump. Time in front of you is racing, while time for you has stopped. A crack, the top of WTC 2 twists and drops into a gray opacity of billowing powder. The South Tower collapses.

Hour = 9:58:59 a.m.; Time = 1 hour, 12.5 minutes

A blast of dust rushes straight in, the scratching of grit pelting windows and the shattering of glass can be heard, a veil is drawn over the death of a building with too many of its occupants. WTC 7 shakes, magnitude 2.1; over in 10 seconds.

Frantic calls home, some flee, time to lock up the sensitive files and leave before the trains are jammed — are they still running? Should some of the computer drives be taken along, for security and just in case? Lights go out, power from Con Edison is cut. The emergency

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generators kick in, power and phones work. Another power fault, then some power returns. Maybe the dust cloud is choking the diesel generator air intakes along Floor 5, and some units are shut down. Crack! — WTC 1 collapses.

Hour = 10:28:22 a.m.; Time = 1 hour, 42 minutes.

The upper block of WTC 1 drops into the burning impact zone and ejects a cascade of incandescent metal and heated stone laterally, from near the 97th story (368 m), at between 12 m/s (27 mph) to 15 m/s (34 mph) during the 1.5 seconds it takes to fall down to the original height of the 71st story (269 m).

This hot volley, within the overall pyroclastic cannonade discharged by WTC 1 during its collapse, hurtles at 86 m/s (193 mph) at a steep angle down into the face of WTC 7 from Floors 18 to zero. A solid missile — a hot section of I-beam? — punches into Floors 11 and 12, bursting through the concrete floors and touching off fires. The elevator shafts at Floors 8 and 9, about 10 to 15 m (33 to 49 ft) into the building, are ruptured and the elevator cars fall out onto the floors. The air pressure wave presses on eardrums, stairwells fill with dust and smoke, and lights go out, the building shakes for nearly 10 seconds; magnitude 2.3.

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Time resumes. Some phones are still lit, but they make no connection.

Wandering confused, Floor 7, heavy dust, one cubicle is burning at the west end — flashlights? Firemen! They lead people down through the choking haze. The lobby is layered in white dust, wires hang from the ceiling, the street is littered with wreckage, a huge cloud rolls all along Vesey Street blocking out the view south.

Hour = noon; Time = 3 hours, 13.6 minutes.

WTC 7 was mortally wounded. In 5 hours and 21 minutes, it would collapse. This article is a visualization of what probably happened. Only gods and the dead have certainty; we, the living, have rationality and courage to guide us through the puzzles and the perils of life.

WTC 7: By The Numbers

WTC 7 was a 176 m (576 ft) tall, 47 story building with a trapezoidal cross section (about): 99 m (325 ft) along the north face, 76 m (249 ft) along the south face, 45 m (148 ft) north-south width, and 47 m (153 ft) along the east and west sides. WTC 7 was about 107 m (350 ft) north of WTC 1, across Vesey Street.

B ecause of its uniqueness, a number of engineering reports have been written about the collapse of WTC 7. A consistent story emerges through the mass of detail. The basic model of the WTC 7 collapse was stated in the earliest report, by FEMA, and increasingly amplified upon by subsequent investigators at NIST — the National Institute of Standards and Technology, a federal agency within the U.S. Commerce Department's Technology Administration. WTC 7 was built in 1987 over an existing Consolidated Edison electrical substation. The Con Ed substation was three stories high, and took up the northern half of the footprint of WTC 7. The 1967 construction of the substation accounted for the eventuality of a building above it, and a much larger and stronger foundation was built. Also, a series of columns rose through the area of the substation, for future use.

The design of WTC 7 was larger than anticipated by the provisions of 1967, so additional foundation columns were sunk. Also, the placement of columns in WTC 7 above Floor 7 did not match all the tops of columns connected to bedrock and waiting to be used. Thus, a series of trusses were designed to transfer the vertical loads above Floor 7 and redistribute them laterally to match the waiting columns below Floor 4. This transition used triangular assemblies of structural steel joined into a framework spanning two stories, Floors 5 & 6. A more detailed description of the three major trusses will be found below.

Part of the transition structure included a Floor 5 made of 11 inches of reinforced concrete on top of a 3 inch 18 gage composite metal deck (supported on I beams); Floor 6 was 3 inches of concrete on a 3 inch 20 gage metal deck; the northern half of Floor 7 was 5 inches of reinforced concrete on a 3 inch 18 gage metal deck, and the southern half of Floor 7 was 8 inches of concrete with two layers of reinforcement (no metal deck). Floors 8 and up (except 21, 22, 23) had 2.5 inches of concrete over 3 inch 20 gage metal decks. These metal decks were sheets of metal with corrugations (metal thickness listed by gage number).

The combination of three massive floors and interconnected triangular supports made the framework of Floor 5 to Floor 7 a diaphragm locking WTC 7 together laterally, core columns and walls (encasing elevator shafts and stairwells) to perimeter columns. The construction of WTC 7 above Floor 7 was similar to that of the WTC Towers (9). The irregular framing between Floors 5 and 7 made for less desirable tenant space, but it was well protected by the robust construction, an ideal location for the building's machinery and the emergency power systems.

Machine Space and Power Systems

Only machinery resided on Floors 5 and 6. Floor 6 had two large cut-outs, one along the east side, another in the southwest corner, to allow for two-story mechanical spaces. A set of louvers spanned the height of Floors 5 and 6 along the eastern face of the building. Table 1 lists the equipment that resided on Floors 5 through 9 (ground level is floor 0).

The "tank" noted in the table would be a 275 gallon diesel fuel tank, the maximum size allowed on any given floor by the NYC Building Code.

There were five emergency power systems in WTC 7. Three of them (American Express, OEM, U.S. Secret

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Service) drew fuel from the other two and larger systems (Salomon Smith Barney, Silverstein Properties).

The emergency power for the building (Silverstein Properties) was provided by two 900 kW generators on the southwest corner of Floor 5. They drew fuel from a 275 gallon tank nearby, and this was replenished by pumps drawing from two 12,000 gallon tanks at ground level under the loading dock, at the southwest corner of the building.

The SSB emergency power system used nine 1,725 kW generators on Floor 5: three in the southwest corner, two near the west end of the north face, four at the east end of the north face. Louvers for air intake and exhaust were situated on the building faces near the generators. Because there was already a 275 gallon "day tank" on this floor, the SSB system pumped on demand from their own pair of 6,000 gallon storage tanks, also situated under the loading dock, under the southwestern part of the building.

The fuel supplier was contracted to keep the tanks full, and they were full that day.

Fuel pipes for all systems except SSB ran up the western side of the core of the building, along elevator shafts. The SSB pipes ran up a shaft through mechanical spaces near the southwest corner of the building.

Kindling

After 1 p.m. on September 11, 2001, WTC 7 was an evacuated, stricken building. The southwest corner and central third of the south face had been ripped open by the cascading debris from the collapse of WTC 1. Fires burned in sections of Floors 6 through 30 at different times, and they migrated along their floors independently, seeking new sources of fuel. From the street the fires on Floors 11 and 12 appeared most intense. Many fires in the area went unchecked because utility power for electrical pumps, and water pressure for fire engines had either diminished or been lost.

This is what happened.

A Pumped Oil Spill

The debris fall ripping into the southwest corner ruptured the oil pipes of the SSB pressurized fuel distribution system. Operating as intended — the lack of utility power triggering the "need", and the lack of pressure due to a severed pipe signaling the "demand", the SSB system pumped oil up from its 12,000 gallon basement reservoir, maximally with a pressure of 50 psi (pounds per square inch) and flow rate of 75 gpm (gallons per minute), onto Floor 5.

The energy produced by the leaking diesel fuel on floor 5 of building 7 was equivalent to that released by an explosion of 367 tons of TNT.

Pumping would have started at 9:59 a.m., when Con Ed cut utility power to WTC 7; and the spilling would have started a half hour later when the pressurized pipe was cut. The SSB pumps could have drained the two 6,000 gallon tanks in 2 hours and 40 minutes. Engineers from the New York State Department of Environmental Conservation found that "there was a maximum loss of 12,000 gallons of diesel from two underground storage tanks registered as WTC 7."

Additionally, "Both tanks were found to be damaged by debris and empty several months after the collapse. Some fuel contamination was found in the gravel below the tanks and the sand below the slab on which the tanks were mounted, but no contamination was found in the organic marine silt/clay layer underneath."

By contrast, 20,000 gallons of oil were recovered from the two 12,000 gallon tanks of Silverstein Properties.

Pulled up by the emergency pumps, the SSB diesel fuel went, from the 6,000 gallon storage tanks, under the loading dock, under the southwestern part of the building, to floor 5.

It may all have been pumped out by 1 p.m., or it may have been pumped out at a rate as low as 29 gpm for 7 hours. Since this fuel was absent from the wreckage, it was burned. You can see it as the huge plume of black smoke rising from the World Trade Center, in panoramic photographs of that day. Diesel fuel can supply 2.13 MW of power per gpm given an air supply of 1333 cfm (cubic feet per minute).

Thus, a diesel fuel gusher of 75 gpm burning with excess air would produce 160 MW of heat; a total energy of 1536 GJ for the 12,000 gallons. This energy is equivalent to that released by an explosion of 367 tons of TNT. If the pumping rate is lower, or the air supply is throttled, then the burning would occur at a lower rate. Since the louver system along Floor 5 was designed to supply each of the nine SSB engines with 80,000 cfm, it seems likely that a fuel oil fire there would find sufficient air for combustion. For a discussion of heat at 9/11, and energy units, CounterPunchers will soon be able to have my study, "the Thermodynamics of 9/11", to be published shortly on the CounterPunch website as part of our final package on the actual physics and engineering realities of the collapse of the WTC buildings.

The diesel fuel spill spread out along Floor 5, which had been partly shielded from damage by the sturdiness of Floor 7, in addition to its own robustness. The fuel spilled down elevator shafts and breaks near the center of the south

Table 1
Machinery on Floors 5 to 9, WTC 7

Floor	Items
9	generator (1 tank) for (tenant) U. S. Secret Service
8	generator (1 tank) for (tenant) American Express
7	generators (1 tank) for the Mayor's Office of Emergency Mgt.
6	switchgear, storage
5	(1 tank), switchgear, transformers.

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The blast of hot debris from WTC 1 kindled fires in WTC 7 and caused an emergency power system to feed the burning to the point of building collapse.

face. Floor 4 has a great deal of open space along its eastern two thirds near the south face. Fuel spilling from above would find an easy route to the eastern side of the middle of the building down to Floor 3.

Truss 1, Truss 2 and Truss 3

A bicycle frame is a truss supporting your weight on the axles of the wheels.

A truss is a rigid framework of beams used to support a bridge, roof or floor. The beams in a truss are usually joined so the empty spaces they enclose have triangular and rectangular shapes. A truss transfers the weight it supports along its span, laterally out to its ends where this weight is then carried by columns or foundations into the ground. A truss is how structural engineers shift vertical loads laterally to distant supports. Many railroad bridges are trusses, hollow rectangular space defined by a network of beams joined in a triangulated fashion, and through which trains move.

A folding ladder opened into an "A frame" is a truss. It supports your weight and, say, a can of paint near the top, by transferring the downward force out to the feet of the A. It relies on a horizontal bar connecting the sloping legs to resist the lateral force pushing the A to open and the top to drop.

WTC 7 had three major trusses, two at the eastern end of the building, and one at the western end. These trusses transferred gravity loads carried by columns above Floor 7, laterally to the positions of columns below Floor 4. These trusses supported relatively large floor areas above Floor 7 for the number of columns below Floor 4.

Truss 1 and Truss 2 were aligned roughly along the east-west direction, parallel and along side each other when viewed from the north-south direction.

Truss 1 was recessed from the north face by over 1/3 of the width of the building, Truss 2 was recessed from the south face by over 1/3 of the width of the building.

Truss 1 was roughly aligned with the northern edge of the building core as it existed above Floor 7, and Truss 2 was roughly aligned with the east-west centerline of this core.

The northern edge of the mechanical bay on Floors 5 and 6 aligned roughly with Truss 1. Truss 2 aligned with the east-west line bisecting the area of this mechanical bay, but it only extended from the core region to half the distance to the east face.

The eastern end of Truss 2 was a column at the center of the nearly-rectangular space mapped out by the eastern mechanical bay of Floors 5 and 6. This particular column was Column 80. The columns rising out of Truss 2 were Columns 80, 77 and 74, from east to west.

Recall, the pattern of columns below Floor 4 did not match the pattern above Floor 7; for example there was no continuation of Column 77 (middle of Truss 2) below Floor 4.

Truss 3 was another formidable structure, and it occupied a similar zone at the western end of the building; it was aligned in the north-south direction. Diagrams of these trusses may help to visualize the distribution of gravity loads in WTC 7.

Dark Fire

Oil pooled in the vicinity of Truss 2. It was ignited by local office fires, and this burning heated the volumes occupied by the spill, further volatilizing combustible hydrocarbon materials. Air entered the fire through the louver system of Floors 5 and 6, as well as through the opening gouged out of the south face by the debris fall from WTC 1. Air probably entered the south face along Floors 0 to 5, and smoke exhausted up through the south face above Floor 5.

The observation of dense smoke rising out of the south face while the other sides remain clear is consistent with an airflow entry through the east face louvers at Floor 5; combustion of vapors in Floors 3 to 6; heating of the eastern interior of the building; and smoke billowing up through the open atriums and lobbies of Floors 3 and 4, and the breached mid-third of the south face up to about Floor 14. See photos, (14)

Most of the heat generated would be trapped within the heat capacity of the building's structure. The maximum heat we expect here is 1536 GJ, which is half (51%) of that released in the WTC 2 fire (3000 GJ) and one-fifth (19%) of the WTC 1 fire (8000 GJ).

By estimating volumes and cross-sectional areas of metal and concrete in walls and floors in the WTC Towers, I arrived at a provisional estimate for the iron and concrete that made up the framework of the WTC buildings. I calculate that the totality of these materials — let's call it "ironcrete," a mixture of 72% iron and 28% concrete — takes up 5.4% of the volume of the building, the other 94.6% being air. We assume that everything else in the building is combustible or an inert material, and the combined mass and volume of these are insignificant compared to the mass and volume of ironcrete. However, the fires in the Towers occurred within larger volumes. Continuing the "ironcrete" example, let us assume that heat

(**Dark Fire** *continued on page 6)*

Table 2
WTC Ironcrete Examples

Item	Units	WTC 1	WTC 2	WTC 7
energy	GJ	8000	3000	768
solid volume	m^3	5210	3473	810
energy density	MJ/m^3	1536	864	948
temperature rise	C	549	309	339
duration	minutes	102	56	180-420

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Ending the Violence in the Israel/Palestine Conflict

What's in a Road Map?

By Michael Neumann

The U.S.A., Israel and several West ern powers demand that Hamas re nounce violence and recognize the state of Israel.

Here's the problem: violence is the only pressure the Palestinians can exert on Israel. No one else is applying any pressure, of any sort. Suppose the Palestinians did indeed renounce violence and recognize the state of Israel. Why would Israel have any reason to do anything other than what it pleases?

There are perhaps some limits on this. Perhaps Israel would not dare actually to wipe out the Palestinians, or push them over some border at the cost of many thousands of Palestinian lives. Suppose this is true. Nevertheless Israel would have not the slightest incentive to change any of its present conduct. In that case, the Palestinians would continue to starve, and the settlements would continue to expand.

This would be a heavenly gift to Israel. There are Israelis who do not support the settlements or the occupation, but these people are no problem for the government because they're not about to bring it down. Why would they, given that their greatest fear, Palestinian violence, had ended? On the contrary, they'd have every reason to support the current régime, because the Israeli economy would flourish. Military expenditures would decline, social spending could increase, and tourism as well as investment would boom.

As for the settlers and their supporters, they'd be very happy too. So all Israelis, at least all Jewish Israelis, would be having a great time, while the Palestinians starved.

But suppose "we" really do want the Palestinians to renounce violence and recognize Israel. Suppose we want peace in Palestine. That would require something more practical than asking the Palestinians to sign their own death warrant. And it would require something more practical than all the well-intentioned plans for negotiated settlements that Israel sees no interest in pursuing.

Let's look at a "road map" that might actually lead somewhere. It won't be implemented in the foreseeable future, but perhaps it's something to consider when people wonder why the Palestinians "aren't more reasonable". And there's nothing quirky about it: it's the sort of plan the U.N. would almost certainly endorse were it not for opposition by a few Western powers.

First, all Western countries would suspend all military, economic and financial aid to Israel, until such time as Israel withdraws completely from every inch of the occupied territories, including East Jerusalem. (Since it would take a while for the suspension to happen, Israel would have plenty of advance notice, and could easily withdraw before any action was taken.) The suspension would be initiated unilaterally, meaning it would actually be put into place unilaterally, without any negotiations. It would be in force for one week, after which time it would be dropped unless the Palestinians suspended all violent attacks on Israel or Israelis – except, of course, as a response to Israeli attacks.

These measures would be absolutely essential to demonstrate that, at long last, the West was serious about its much-proclaimed desire to end violence in this tragic conflict. Unlike past proposals, both sides would now have a real incentive to make peace.

Suppose the Palestinians did indeed suspend all attacks after one week. Then Israel would have another week in which to announce its intention to effect a complete withdrawal of all military forces from the occupied territories, regardless of whether the settlers left. These forces would have to be withdrawn, under the sanctions, within another three weeks.

If the announcement was not forthcoming, or if the withdrawal was not completed on time, the sanctions would intensify. All shipments, travel and communications to and from Israel, including financial transactions, would cease, except for strictly humanitarian aid.

The situation would be roughly what prevailed in Iraq after the first Gulf war. Naturally enforcing these sanctions would require a robust international military presence on Israel's borders, assuming its neighbors agreed. The sanctions would remain in place until complete withdrawal, or resumption of Palestinian violence, whichever came first.

Once the withdrawal was complete, that is to say, once every last Israeli soldier had left the occupied territories, the Palestinians would be asked to recognize Israel. Assuming they agreed, they would get sovereignty over their own territory and, therefore, the right to do what they thought fit there, within the limits of such international rules as the Geneva Convention. Of course this power would extend to the settlements.

This, I think, would be a realistic peace process. Israel would have an incentive to make peace, as would the Palestinians. Isn't that what's needed to bring an end to terror in Palestine? CP

Michael Neumann teach philosophy at Trent University. He is the author of The Case Against Israel, published by CounterPunch/AK Press.

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(**Dark Fire** *continued from page 4*)
is stored in the structure of WTC 7, that has a volumetric heat capacity of Cv = 2.8*10^6 joules/(Centigrade*m^3).

Trapping heat in an ironcrete matrix can be thought of as the charging of a thermal battery.

If the WTC 1 fire was concentrated in 6 stories, with a total volume of 96,480 m^3, then the volume of ironcrete would be 5210 m^3, and its average temperature rise would be 549 C.

If the WTC 2 fire was concentrated in 4 stories, with a total volume of 64,320 m^3, then the volume of ironcrete would be 3473 m^3, and its average temperature rise would be 309 C.

If we assume the oil fire in WTC 7 occurs on the eastern third of the floor space of three floors, then the volume of the oil fire equals that of one floor, which is roughly 15,000 m^3. In this case, the ironcrete volume is 810 m^3, and its temperature rise is 677 C. This estimate assumes all the energy of combustion contained in the fuel oil is released and captured by the structure; clearly, an overestimate.

If we assume that up to half of the combustion energy is lost, because the air is throttled, and because fuel vapors are lost to the atmosphere (as hot, smoky pollution), then we arrive at 768 GJ released within 3 to 7 hours, producing an ironcrete temperature rise of 339 C. Since the flame temperature is about 1100 C (2000 F), we can expect metal supports within continuing fires to heat up by much more than the average amount estimated here.

The thermal energy density is near 1000 MJ/m^3 in all three examples, which correspond (as highly simplified idealizations) to three buildings that collapsed because of thermal weakening of their frames. Perhaps this observation can help to estimate the risks posed by potential fires elsewhere.

Heat Exhaustion

The fall of WTC 7 was caused by an oil well fire under a loaded bridge.

All of the structural analysis done by FEMA and NIST points to a failure of Truss 1 or Truss 2 — Truss 2 seems more likely to me — as the initiating failure in WTC 7. The sequence is as follows:

• thermal weakening of Truss 2 leads to its failure,

• the loss of support low in the eastern interior propagates to the roof,

• the weight (and dynamic force) of material falling onto the diaphragm on Floor 5 tips this rigid layer of the building,

• this causes failure of column joints to the diaphragm,

• lack of vertical support through the diaphragm progresses up the interior of the building west of Truss 2 (and/or Truss 1),

• the difference in collapse timing east and west of Truss 2 creates a vertical crack/crease/kink/fold/break through the building above Truss 2 (Column 80),

• a progressive collapse propagates up and material falls freely,

• since the building implodes, exterior walls falls in.

To sum up: The blast of hot debris from WTC 1 kindled fires in WTC 7 and caused an emergency power system to feed the burning to the point of building collapse.

One of the building's major bridging supports was heated to the point of exhaustion by the burning of an abundant store of hydrocarbon fuel. CP

Manuel Garcia works as a physicist at the Lawrence Livermore National Laboratory in California with a PhD Aerospace & Mechanical Engineering, from Princeton. His technical interests are generally in gas dynamics and plasma physics; and his working experience includes measurements on nuclear bomb tests, devising mathematical models of energetic physical effects, and trying to enlarge a union of weapons scientists. We will be publishing our series on 9/11 in full on our site later this year, with a full apparatus of footnotes and citations.

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